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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FRANK, RODNEY T

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/518,715	Applicant(s) MANCOSU ET AL.	
	Examiner Rodney T. Frank	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 32-39 is/are rejected.
- 7) ☒ Claim(s) 26-31 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/22/04 & 3/09/05</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: a tire "11" in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 111 in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet"

or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: bead 14' in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 14" in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing

date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: sidewall 19' in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 19" in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet,

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even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: reference letter "E". Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 31 in Figure 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures

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appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

9. The disclosure is objected to because of the following informalities: It is advised that the word "tyre" be replaced with the word "tire".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 20-23 and 34-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Coulthard (U.S. Patent Number 5,825,286). Coulthard discloses that selected vehicle operational parameters such as tire pressure, wheel temperature and vibration are sensed by sensors mounted on wheel modules secured to the individual vehicle wheels. The sensed parameters are converted to digital format and the resulting digital data is manipulated to determine if the data falls within predetermined operating ranges. The data and information resulting from the manipulation are used to

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modulate an RF signal transmitted to another location on the vehicle. Additional parameters are sensed at the second location, and calculations are performed on the data received from the wheel modules and the data sensed at the second location to display operational, efficiency and safety information to the vehicle operator and to make such information available to others such as vehicle owners and maintenance personnel (Please see the abstract).

With respect to claim 20, Coulthard discloses a system for sensing at least one characteristic parameter of a tyre fitted to a vehicle, comprising a movable unit (10, figure 1); and a fixed unit (figure 5); wherein the movable unit is combined with the tyre, wherein the movable unit comprises a device for sensing the at least one characteristic parameter (pressure (sensor 11, figure 1) or temperature (sensor 13, figure 1)); a device for transmitting signals out of the tyre (antenna 23, figure 1); a processing unit (19); and a storage device (memory not shown, see column 2 lines 53 through ; wherein the fixed unit is combinable with the vehicle (see column 7, lines 22 through 25), wherein the fixed unit comprises a device for receiving signals from the movable unit (antenna 120), wherein the processing unit and storage device carry out pre-processing of a signal generated by the sensing device and send the pre-processed signal to the transmitting device (see column 2, lines 57 through 59), and wherein the transmitted signal relates to the at least one characteristic parameter.

With respect to claim 21, the system of claim 20, wherein the movable unit further comprises a device for generating electrical energy; wherein the electrical energy generating device is capable of supplying electrical energy to the processing

unit, and wherein the electrical energy generating device is capable of supplying electrical energy to the transmitting device, as disclosed in column 5, lines 5 through 11.

With respect to claim 22, the system of claim 20, wherein the storage device comprises at least one pre-stored procedure capable of performing the pre-processing of the signal generated by the sensing device is disclosed in column 8 line 16 through column 9 line 24.

With respect to claim 23, the system of claim 20, wherein the signal generated by the sensing device is converted into a digital signal by the processing unit is disclosed in column 8 line 16 through column 9 line 24.

With respect to claim 34, a method for sensing at least one characteristic parameter of a tyre fitted to a vehicle, comprising sensing inside the tyre a signal relating to the at least one characteristic parameter; processing the signal inside the tyre using procedures pre-stored in a storage device; and transmitting the processed signal out of the tyre, is disclosed in column 2 lines 24 through 67.

With respect to claim 35, the method of claim 34, wherein processing the signal comprises digitizing the signal, as disclosed in column 7 lines 46 through 59.

With respect to claim 36, the method of claim 34, wherein processing the signal comprises filtering the signal, is disclosed in column 14, lines 56 through 62.

With respect to claim 37, the method of claim 34, wherein processing the signal comprises comparing the signal with a threshold value pre-stored in the storage device is disclosed in column 10, lines 17 through 28.

With respect to claim 38, a movable unit for sensing at least one characteristic parameter of a tyre fitted to a vehicle, comprising a device for sensing the at least one characteristic parameter; a device for transmitting signals out of the tyre; a processing unit; and a storage device; wherein the processing unit and storage device carry out pre-processing of a signal generated by the sensing device and send the pre-processed signal to the transmitting device, and wherein the transmitted signal relates to the at least one characteristic parameter is disclosed in column 2 lines 24 through 67.

With respect to claim 39, a vehicle wheel, comprising a tyre; a supporting rim for the tyre; and a movable unit combined with the tyre; wherein the movable unit comprises a device for sensing at least one characteristic parameter of the tyre; a device for transmitting signals out of the tyre; a processing unit; and a storage device; wherein the processing unit and storage device carry out pre-processing of a signal generated by the sensing device and send the pre-processed signal to the transmitting device, and wherein the transmitted signal relates to the at least one characteristic parameter is disclosed in column 2 lines 24 through 67.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 24, 25, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulthard as applied to claims 20-23 and 34-39 above, and further in

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view of Breed et al. (U.S. Patent number 6,662,642; hereinafter referred to as Breed).

Breed discloses a wireless sensing and communication system including sensors located on the vehicle or in the vicinity of the vehicle and which provide information which is transmitted to one or more interrogators in the vehicle using wireless radio frequency transmission technology. Power to operate the sensor may be supplied by the interrogator. The sensors include tire pressure, temperature and acceleration monitoring sensors, weight or load measuring sensors, switches, temperature, acceleration, angular position, angular rate, angular acceleration, proximity, rollover, occupant presence, humidity, presence of fluids or gases, strain, road condition and friction, chemical sensors and other similar sensors providing information to a vehicle system, vehicle operator or external site. The sensors provide information about the vehicle and its interior or exterior environment, about individual components, systems, vehicle occupants, subsystems, or about the roadway, ambient atmosphere, travel conditions and external objects (Please see the abstract).

In reference to claims 24, 25, 32, and 33, there is no specific mention of the sensor(s) used in the Coulthard reference that states that the sensors are MEMS based sensors or sensors on a substrate. Breed, however, is in the same field of endeavor of tire pressure and temperature (tire parameter) monitoring, and Breed states that as early as June of 1997, it was established that MEMS based tire pressure sensors was one of the most profound for MEMS in the automotive sector (see column 3 lines 51 through 55). With this in mind, one would be motivated to utilize a MEMS based tire pressure sensor as the sensor for the Coulthard system since such a sensor is

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disclosed to make wireless and powerless monitoring of tire pressure a reality. (see column 3 lines 47 through 55). Further, a MEMS sensor is constructed on a substrate, so the use of a Sensor substrate with a MEMS based sensor would be obvious to one of ordinary skill in the art at the time of the invention. The motivation to combine the MEMS sensors of Breed with the device of Coulthard is that the MEMS based sensor would be a very lower powered sensor to operate, and thus help achieve some of the power saving goals of Coulthard.

Allowable Subject Matter

14. Claims 26-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

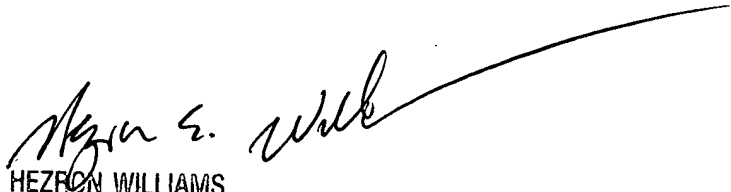
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney T. Frank whose telephone number is (571) 272-2193. The examiner can normally be reached on M-F 9-5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RTF
October 11, 2006



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